

What is claimed is:

1. A purification system of exhaust gases in an internal combustion engine for purifying the exhaust gases by
5 disposing a reaction furnace capable of reducing noxious components of the exhaust gases in an exhaust pipe of the internal combustion engine, the system comprising:

10 a reactor including a honeycomb carrier having a plurality of carrier cells, each of which a photocatalyst layer is coated, in the reaction furnace, and a plasma generating means having a plurality of electrode cells and mounted on an inner end and an outer end of the honeycomb carrier

15 2. The purification system of claim 1, wherein the honeycomb carrier includes a photocatalyst layer coated on a wall surface of each of the carrier cells, the photocatalyst layer being activated by a plasma photic source.

20 3. The purification system of claim 1, wherein the honeycomb carrier includes a 3-way catalyst layer coated on a wall surface of each of the carrier cells and a photocatalyst layer coated on the 3-way catalyst layer, the photocatalyst layer being activated by a plasma photic
25 source.

4. The purification system of claim 1, wherein a volume and a number of each of the electrode cells are varied depending upon the variation of that of each of the carrier cells, the carrier cells having 100 - 900 numbers per the unit area(1 inch X 1 inch).

5. The purification system of claim 1, wherein each of the electrode cells of the plasma generating means is electrodes including a wire mesh formed by intersecting and arranging wires.

6. The purification system of claim 1, wherein the plasma generating means is electrodes having a regular length in horizontal direction, a cross section of each of the electrodes being in the form of a honeycomb.

7. The purification system of claim 1, wherein the plasma generating means is electrodes including a wire mesh roll .

8. The purification system of claim 1, wherein the plasma generating means is electrodes including a punched plate.

9. The purification system of any of claims 5 - 8, wherein the electrode is closely or distantly disposed to each of the honeycomb carriers.

10. The purification system of any of claims 5 - 8, wherein edges of each of the electrode cells are arranged to be positioned at center of each of the carrier cells.

5 11. The purification system of claim 9, wherein the distance length of the electrodes is 1 - 40% of the length of each of the honeycomb carriers.

10 12. The purification system of claim 6, wherein the electrode cells of each of the honeycomb carriers include a 3-way catalyst layer coated on a surface thereof.

15 13. The purification system of claim 1, further including a plurality of reactors in the reaction furnace.

20 14. The purification system of claim 13, wherein one electrode comprises a wire mesh and is distinctly disposed between the honeycomb carriers, while the other electrode comprises a wire mesh or a punched plate and is closely disposed to the outer end of each of the honeycomb carriers.

25 15. The purification system of claim 13, wherein one electrode comprises a wire mesh roll and is distinctly disposed between the honeycomb carriers, while the other electrode comprises a wire mesh or a punched plate and is closely disposed to the outer end of each of the honeycomb

carriers.

16. A purification system comprising a ceramic carrier, a photocatalyst coated to the carrier, and an electrode, the electrode using as a photic source for exciting the photocatalyst, the system further comprising:

an oxygen supplying portion for supplying oxygen into an exhaust pipe disposed to the purification system ahead.

17. The purification system of claim 16, wherein the oxygen supplying portion includes an inlet port, a plate for opening and closing the inlet port, and a spring disposed in order to open and close the plate by being compressed and contracted due to a difference between a pressure in the exhaust pipe and an atmospheric pressure.

18. The purification system of claim 16, wherein the oxygen supplying portion controls the supply of oxygen by a solenoid valve.

19. The purification system of any of claims 16 - 18, wherein the oxygen supplying portion includes an air introducing portion having an opening port, the opening port being disposed to a traveling direction of vehicles.

20. The purification system of claim 19, wherein the air

introducing pipe further includes a blowing fan.

21. An atmospheric purification system comprising a photocatalyst coated on a heat exchanger of automotive vehicles; and a photic source, wherein an atmosphere including a pollutants passes through the heat exchanger to thereby exit the photocatalyst, causing them to be purified by the exited photocatalyst.

22. The atmospheric purification system of claim 21, wherein the heat exchanger includes a radiator flowing fluid an internal circulating fluid of an internal combustion engine of the automotive vehicles therein and having a plurality of cooling pins for a heat exchanging.

23. The atmospheric purification system of claim 21, wherein the heat exchanger includes a condenser having a plurality of cooling pins operating as a part of an air-conditioner of the automotive vehicles, the photocatalyst being coated on the plurality of cooling pins.

24. The atmospheric purification system of any of claims 21 - 23, further including a cooling fan closely disposed to the heat exchanger for varying a rotation speed depending on the speed of a current of the atmosphere.

25. The atmospheric purification system of claim 24, wherein the photic source is a solar light or a ultraviolet lamp.

5 26. The atmospheric purification system of claim 25, further comprising a reflective mirror for increasing a ultraviolet ray irradiated into the heat exchanger is closely disposed to the ultraviolet lamp when the photic source is the ultraviolet lamp.

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27. The atmospheric purification system of claim 26, wherein the reflective mirror protects the ultraviolet lamp from a pressure due to the speed of the current of the atmosphere and irradiates the ultraviolet light irradiated from the ultraviolet lamp into the heat exchanger.

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